

**Notice of Allowability**

Application No.

10/030,959

Examiner

William K Cheung

Applicant(s)

CHENET ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/16/03.
2. ☒ The allowed claim(s) is/are 1-17.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some\* c) ☐ None of the:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
(a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.  
(a) ☐ Including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.  
(b) ☐ Including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.  
(c) ☐ Including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1 ☒ Notice of References Cited (PTO-892)
- 2 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3 ☐ Information Disclosure Statements (PTO-1449 or PT/8B/08),  
Paper No. 041702
- 4 ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
- 5 ☐ Notice of Informal Patent Application (PTO-152)
- 6 ☐ Interview Summary (PTO-413), Paper No. \_\_\_\_\_
- 7 ☐ Examiner's Amendment/Comment
- 8 ☒ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

## DETAILED ACTION

### Allowances

1. Claims 1-17 are allowed.
2. The following is an examiner's statement of reasons for allowance:

As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the closest prior art of Kaino et al. (US 4,381,269) to render the present invention anticipated or obvious to one of ordinary skill in the art.

*The invention of claims 1-17 relates to a **batchwise process** for the **manufacture of an optical fiber made of polymers**, this fiber comprising core and sheath, the **core being formed from a first polymer based on methyl methacrylate and optionally on a (meth)acrylic ester other than methyl methacrylate and the sheath being formed from a second polymer having a lower refractive index than that of the core**, this process being characterized in that **the process is carried in an in-line plant ranging from device for the purification the starting materials spinning device, involving the intermediacy of the various devices of the in-line plant and the various transfer means connecting the various devices of the in-line plant, this plant***

***being leaktight to the external air and to dust and sheltered from light, in particular ultraviolet radiation, and in that the process comprises the following stages;***

***(1) beads of the first polymer are prepared by suspension polymerization of purified methyl methacrylate and optionally of at least one purified (meth)acrylic ester other than methyl methacrylate in demineralized, filtered and deoxygenated water, the polymerization being carried out in the presence of at least one radical polymerization initiating agent, of at least one chain-transfer agent and of at least one suspending agent and in the virtually complete absence of polymerization inhibitor and of impurities, such as:***

***(a) biacetyl, in an amount reduced to at most 1 ppm with respect to the total amount of monomers,***

***(b) transition metal ions capable of giving strong light absorption in the visible region,***

***(c) dust and particles, the various abovementioned starting materials used in the suspension polymerization having been filtered before polymerization with a filtration threshold of 0.1 micron;***

***the polymerization also being carried out with stirring, under an atmosphere carried out with of an inert gas;***

- (2) conclusion of stage (1), the beads are separated and washed using demineralized and dedusted water and are dried under an atmosphere of a dedusted and preferably inert gas, and the dried beads are stored under this atmosphere in at least one intermediate tank;*
- (3) at least a portion of the beads obtained on conclusion of stage (2) is transferred, still under atmosphere of an inert and dedusted gas, from the intermediate tank or tanks to a coextrusion device and the core of the fiber, starting from said beads, and the sheath of the fiber, starting from polymer having lower refractive index than that of the core, are coextruded;*
- (4) the fiber obtained at the outlet of the coextrusion device is gradually cooled, so as to avoid quenching the first polymer intended to constitute the core of the fiber, and the fiber drawn, in order to obtain fiber with mean total diameter which can vary from 250 to 2000 microns.*

The closest prior art Kaino et al. (col. 1, line 5-15) disclose a fabrication method of low-loss plastic optical fibers consisting of a core of a polymer which is prepared from methyl methacrylate as the principal component and a cladding of a synthetic macromolecular compound having a lower refractive index than that of the core. Further, Kaino et al. (col. 2, line 48-64) disclose that a method for improving optical transmission of plastic optical fibers involves a reduction of biacetyl content in methyl methacrylate. Regarding dust and impurities, Kaino et al. (col. 3, line 21-39) clearly

teach a method that involves the removal of dust or impurities incorporated at the time of addition of a polymerization initiator and chain transfer agent by the use of a filter (0.2-1 micron). Further, Kaino et al. (col. 3, line 40-48) disclose that the impurities ions such as transition metallic ions or the like in the polymer should be 500 ppb or less, preferably 100 ppb or less. If there exists 10 ppb of cobalt ion, a considerable increase of loss in specific wavelength.

However, Kaino et al. are silent on a batchwise process for the manufacture of an optical fiber made of polymers which involves beads of the first polymer are prepared by suspension polymerization. Further, because Kaino et al. are silent on a suspension polymerization process, it would not be apparent to one of ordinary skill in art to carry out the said suspension polymerization process in an in-line plant ranging from device for the purification the starting materials spinning device, involving the intermediacy of the various devices of the in-line plant and the various transfer means connecting the various devices of the in-line plant, the leaktight to the external air and to dust and sheltered from light features as claimed. Kaino et al. (col. 9, line 28-32) clearly teach that the utilization of suspension is not preferable regarding the disclosed polymerization process. Therefore, it would not be apparent to one of ordinary skill in art to use the process teachings of Kaino et al. to obtain all the emulsion polymerization related process limitation of applicants' claims 1-17. The invention of claims 1-17 is allowed.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, and to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K Cheung whose telephone number (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-5885.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1300.

A handwritten signature in black ink, appearing to read 'William K. Cheung', with a long, sweeping horizontal stroke extending to the right.

William K. Cheung

Patent Examiner

December 22, 2003